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The Commonwealth of Massachusetts

ANNUAL REPORT

OF THE

BOARD OF REGISTRATION IN OPTOMETRY

FOR THE

YEAR ENDING NOVEMBER 30, 1927

DIVISION OF REGISTRATION
DEPARTMENT OF CIVIL SERVICE AND REGISTRATION

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The Commonwealth of Massachusetts

REPORT

Department of Civil Service and Registration
Board of Registration in Optometry
State House, Boston, Mass., January 4, 1928.

To William F. Craig, *Director of Registration.*

Sir:—The Board of Registration in Optometry has the honor to submit to you its sixteenth annual report, as required by Section 67, Chapter 112 General Laws.

The Board has held during the year, two examinations; in June and November. The total number of candidates examined was 45. Of this number 14 passed and 31 failed.

The following written examination was given June 28, 29, 30 and July 1, 1927:

Anatomy

1. Name the motor and sensory nerves of the eye. Give their origin and insertion.
2. Describe in detail the choroid, ciliary body and the Iris.
3. Give in detail the vascular circulation of the uveal tract.
4. Define Neuron. Describe the neurons of the retina with nerve connections and endings.

Physiology

1. Discuss in detail the functions of the Extrinsic muscles, also the Intrinsic muscles.
2. What is the first essential in vision.
3. Give the functions of the (a) sclera. (b) conjunctiva. (c) cilia. (d) supercilia. (e) Iris. (f) aqueous. (g) vitreous.
4. Discuss fully the function of the ciliary body and processes.

Pathology

1. Define (a) mydriasis, (b) myosis. (c) When are these conditions physiological, (d) when pathological, (e) when mechanical?
2. Does examination with Ophthalmoscope which records no pathology of fundi or media eliminate possibility of diseased conditions?
3. Discuss differentiation in cornea ulcer, conjunctivitis, chalagion, pannus, interstitial keratitis.
4. Describe ophthalmoscopic appearance of Albuminuric Retinitis. Name possible ocular conditions that may arise in the course of nephritis.

June, 1927. H. C. Doane.

Theoretic Optics

1. Give a general explanation of the interference bands produced in white light by the use of Fresnel's mirrors.
2. Draw two diagrams showing the course of light thru (a) a thick biconvex lens; (b) a thick biconcave lens.
3. What would be the power of a 5 $\bigtriangledown$ prism at 40°, its base apex line being at 75°?
4. What are Newton's Rings? For what purpose are they used?
5. A lens measure set to be used on glass of an index 1.52 is used on a lens made of glass with an index 1.56. What will be the error when the reading is +5.?
6. State a formula for obtaining size of test type if the visual angle is other than 5′ (minutes) of arc.

Physiological Optics

1. How do we find out the distance of a perceived object from the eye?
2. a) What is meant by the term *line horopter?*
   b) When is the line horopter said to be vertical and when horizontal?

3. What takes place in the eye when we measure the Amplitude of Accommodation? Explain fully.

4. What are the three classes of functions of the retina? Write briefly on each.

5. Why does the stenopaic slit make objects appear more distinctly and what takes place when its minimum limit is exceeded?

6. Name and locate the optic constants of the eye.

June, 1927. W. I. Brown.

Theoretic Optometry

Answer ten questions only.

1. a) What is the astigmatic dial?
   b) How are the charts made use of in testing astigmatism?
   c) How is the meridian of astigmatism determined?
   d) How is the axis of the cylinder placed according to the blackest line selected?
   e) Are minus cylinders used in correcting astigmatism?
2. Explain the V test for astigmatism?
3. a) What is the Ophthalmometer?
   b) If the wires separate in any meridian what does it indicate?
   c) If they lap over what may we assume?
   d) What is the normal curvature of the cornea?
   e) If curvature is more than average what does it indicate? If less what?
4. Using the ophthalmoscope, indirect methods, what are the comparative size of the disc in Emmetropia, Myopia and Hyperopia?
5. Discuss the cross-cylinder check test (a) Its purpose; (b) how and when used; (c) Kind of lenses and charts required. (d) Patient wearing + 2.75 = — 1.00 cyl ax 165 = 20/30, with a — .25 = + .25 cross cylinder with minus axis over — 1.00 cyl patient's vision improves to 20/20. Write the Rx for 20/20 vision.
6. State Skiametry with + 1.50 before the eye. Point of reversal in 45th meridian is at 27″, and is within the 135th meridian by changing the + 1.50 to a + 2.75 the point of reversal in the 135th meridian is at 40″. Write the Rx.
7. With the stenopaic slit it requires a + 1.75 in the vertical meridian and a — .75 in the horizontal. Write the Rx.
8. Explain the sissors movement in skiametry. Its cause and correction.
9. A presbyope wishes to read at 13″ his p.p. is 16″. What lens would be required so he could use 2/3 of his accommodation?
10. If the p.r is 33 cm behind the retina and the p.p. 33 cm in front, what is the refractive error and amplitude of accommodation?
11. A person 50 years old looking at an object 20″ away with a — 4.00 = + 4.00 cyl ax 90 accommodates 1.D. What would be his distant and near correction?
12. Discuss the utility of Kratometer?

June, 1927. S. W. Baker.

Practical Optometry

Answer ten of the following questions. Confine your answers in the following cases to writing a prescription of your analysis of each, discussing your reasons for your procedure.

1. Housewife, age 47. History, frontal and occip. headaches, general nervous disturbances, tension normal, reflex poor, requires for distance O. D. + 25 cyl ax 30 O. S. + 50 cyl ax 135 add for near + 150 O. U. has 1¼ right Hyper. at 20 ft. and 14° Exo. at 14 in.

2. Music Teacher, age 29. History, eyes tire and blur. Frontal headaches, dizziness, ocular tension normal, manifest 2° Eso. and 8° Exo. 1½ right Hyper. at 20 ft. and 5° right Hyper. at 14 in. Trial case O. D. + 250 = — 450 cyl ax 160. O. S. + 225 = — 325 cyl ax 05. Dynamic Skia 16 in. O. D. + 400 = — 350 cyl ax 160. O. S. + 400 = — 350 cyl ax 8.

3. Lawyer, age 50. History, two attacks Iritis in last three years. Eyes tire, blur for distance and near. X-rays of teeth, abscess on one which was removed. Media dull on Dynamic Skia at 14 in. O. D. + 325 = — 75 cyl ax 180, O. S. + 275 = — 100 cyl ax 155. Trial case O. D. + 50 cyl ax 90, O. S. — 125

cyl ax 155, add + 250 O. U. for near. Manifests 2° L. Hyper. at 20 ft., 8° Exo. at 14 in. 4° L. Hyper. at 14 in.

4. Shop Superintendent, age 64. History, dizziness, eyes tire and blur, unable to drive car. Media dull. Tension strong. Eyes protrude, pupil size 5 m/m, contour O. K. Dynamic Skia at 14 in. O. D. + 350 = — 200 cyl ax 150. O. S. + 50 = — 100 cyl ax 75, add + 250 O. U. for near. Manifests 13° Eso. and 7° L. Hyper. at 20 ft., 2° Eso. and 7° L. Hyper. at 14 in.

5. Housewife, age 60. History, pain back of eyes and top of head, dizziness. Dynamic Skia at 14 in. O. D. + 550 = — 225 cyl ax 165, O. S. + 575 = — 425 cyl ax 170. Subjective O. D. + 250 = — 225 cyl ax 165, O. S. + 250 = — 425 cyl ax 170, add + 250 for near. Manifests 15° Eso. at 20 ft., 32 Exo. at 14 in.

6. Retired Business Man, age 70. History, dizziness, sees two objects near work causing slight nervous disturbance. Ophthalmoscope shows fundus in good condition, circulation good with blood stream thin. Dynamic Skia at 14 in. O. D. + 300 = — 50 cyl ax 105, O. S. + 300 = — 50 cyl ax 90. Manifests 25° Eso. at 20 ft., 9° Eso. at 14 in. Subjective O. D. + 225 = — 50 cyl ax 105, O. S. + 225 = — 50 cyl ax 90, add + 250 O. U. for near.

7. Discuss fully your reasons for using the Ophthalmoscope describing both the direct and indirect methods and value of each in Optometrical practise.

8. Discuss fully your procedure in examining the eyes of a man, age 55, requiring distant and near lens employing static and dynamic methods with plain retinscope and trial lens. Write a prescription of your findings.

9. Teacher, age 26. History, eyes tire, objects blur at times. Dynamic Skia at 14 in. O. D. + 225 = — 50 cyl ax 90, O. S. + 250 = — 50 cyl ax 90. Subjective O. D. + 100 = — 50 cyl ax 90, O. S. + 125 = — 50 cyl ax 90. Manifests 21° Eso. and 2° L. Hyper. at 20 ft. At 14 in. 21° Eso. and ½° L. Hyper.

10. Bookkeeper, age 40. Dynamic Skia at 16 in. O. D. — 100 = — 50 cyl ax 90, O. S. — 75 = — 25 cyl ax 90. Subjective O. D. — 200 = — 50 cyl ax 90, O. S. — 175 = — 25 cyl ax 90. Manifests 6° Eso. + 1 R. Hyper. at 20 ft., 21° Exo. at 16 in.

11. Bookkeeper, age 31. Dynamic Skia at 16 in. O. D. + 100 = — 50 cyl ax 180, O. S. + 100 = — 50 cyl ax 180. Subjective O. D. — 50 cyl ax 180, O. S. — 50 cyl ax 180. Manifests 13° L. Hyper. and 6° Exo. at 20 ft., 10° L. Hyper. and 9° Exo. at 16 in.

12. Housewife, age 47. History, nervous, eyes blur for distance and near, pain around eyes. Dynamic 16 in. O. D. + 350 = — 25 cyl ax 135, O. S. + 350 = — 50 cyl ax 180. Subjective O. D. + 150 = — 25 cyl ax 135, O. S. + 150 = — 50 cyl ax 180. 2° Eso. at 20 ft., 14° Exo. and 1° L. Hyper. at 16 in.

June, 1927. G. S. Houghton.

Practical Optics

1. Using spherical lenses only, state which lenses you would use to neutralize the following:

a) — 125 cyl × 180 = + 100 cyl × 90.
b) + 37 cyl × 75 = + 75 cyl × 165.
c) + 75 Sph = — 175 cyl × 180.
d) — 125 Sph = + 62 cyl × 90.

2. a) What is the dioptric value of the following lenses combined: + 150 cyl × 75 = — 75 cyl × 165 = + 50 Sph = — 75 cyl × 75 = — 125 Sph.

b) In surface grinding a lens, how many grades of abrasives are used and what is the object of each grade?

3. a) In looking through a lens, how would you decide whether it is a cylinder, sphere or sphero-cylinder?

b) If a compound lens, plus on plus, were placed before you, with axis of cylinder set with an inclination somewhere between 90° and 180°, state how you would determine, by looking through the lens that the axis was not between zero and 90°?

4. a) What is the difference between a 1/10 10K White Gold frame and a 10K White Gold frame?

b) What is the difference between a shell riding bow frame and a zylonite skull-fit frame?

5. a) The right ear is higher than the left. How would you adjust a skull-fit frame?

b) The right side of the nose is more prominent than the left. How would you adjust an eye glass?

6. a) Patient requires N 2½ bridge for spectacles. P.D. 62 mm. What size finger piece mounting and lenses would you prescribe?

b) Patient requires No. 242 finger-piece mounting, lenses 41 × 36. What size spectacle bridge would you prescribe, and what would be the P.D.

7. a) Bridge measurements ⅛ × ⅝ × $\frac{1}{16}$ in. Explain how you would bend so as to make bridge 0 × ½ × 1/10 out.

b) If the nose is flat, what is the usual length of shank of the bridge?

8. Since the thickness of a plus lens makes its power slightly different from that of a minus lens ground on the same curvatures, how is it that corresponding lenses in plus and minus as found in the trial case neutralize?

9. a) Prescription reads as follows:

O. D. + 3.50 sph. = + 150 cyl × 90 Decenter in 4. mm.
O. S. + 400 sph. = + 50 cyl × 180 Decenter in 4. mm.
What is the amount of each prism?

b) How many millimeters will be required to decenter each of the following lenses:

+ 2.00 sphere — 1° prism, base in.
+ 2.75 sphere = — 50 cyl × 90 — 1½° prism, base out.

10. A patient's Rx is O. U. The curve of one side of the wafers is—3.75. The outside curve of the lenses is + 6.00 combined with + .50 cylinder. What is the addition for reading and the inside curve of the lenses, they being Toric?

June, 1927. M. J. Fowler.

The examinations as in previous years have occupied four days, the first three being devoted to written examinations on theoretic, technical and practical subjects, while the fourth is devoted to practical demonstration of the use of instruments and methods used in the practice of optometry. In the quality and scope of the written examination, the Board has, during the year, maintained very high standards. The practical demonstration required of the applicant has been more comprehensive than in former years. The Board maintains that before issuing a certificate of registration an applicant must demonstrate a practical understanding of the methods, and proficiency in technique with the instruments used. The applicant is therefore required to make a complete routine examination of a subject's eyes, write a prescription, demonstrate his ability to properly adjust eyeglasses and spectacle frames, and to analyze and neutralize ophthalmic lenses.

All applicants are required to attain the grade of 70 percent as a passing mark in each subject. Those failing in two subjects only, are required to take those subjects again at a subsequent examination. Those failing in more than two subjects are required to take the entire examination over again.

The Board, with the efficient aid of the Department of Public Safety had investigated numerous reports of the violations of the optometry law. No prosecutions have been necessary, but several cases of questionable practice have been effectually stopped.

The Board respectfully asks that more commodious accommodations be provided for our records and files, the space now used being inadequate and congested.

In September, His Excellency, Governor Alvan T. Fuller reappointed Howard C. Doane of Boston for a term of five years.

At the annual meeting of the Board, Mr. Howard C. Doane of Boston, was re-elected Chairman for the ensuing year, and Mr. George S. Houghton of Somerville was re-elected Secretary for the ensuing year.

During the past year 14 persons have qualified for registration by examination. Six certificates were revoked and 15 optometrists died. There is now a total of 1009 registered optometrists in Massachusetts.

Financial Report

Receipts

Received from applicants for examination	$400.00
Received from re-examination fees	75.00
Received from renewals	1,864.00
Received from H. S. exams	25.00
Received for duplicate certificate	5.00
Total Receipts	$2,369.00

Expenditures

Cash paid for compensation for commissioners	$1,900.00	
Cash paid for travel expense	246.03	
Cash paid for general office expense	227.50	
Total Expenses		$2,373.53

Respectfully submitted,

HOWARD C. DOANE, *Chairman.*
GEO. S. HOUGHTON, *Secretary.*
WALTER IRVING BROWN,
MATTHEW J. FOWLER,
SAMUEL W. BAKER.